



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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re application of:  
David S. Pecora

Serial No.: 09/854,206

Filed: May 11, 2001

For: **ETCH OF SILICON NITRIDE SELECTIVE TO  
SILICON AND SILICON DIOXIDE USEFUL  
DURING THE FORMATION OF A  
SEMICONDUCTOR DEVICE**

§  
§ Group Art Unit: 1765  
§  
§ Examiner: Binh X. Tran  
§  
§ Atty. Docket: 00-0737.00/US  
§  
§ Paper No. 7  
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Box RCE  
Commissioner for Patents  
Washington, D.C. 20231

Certificate of Mailing (37 CFR § 1.8)

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January 21, 2003

Date

*John D. Hunter*  
Signature

**RESPONSE TO THE OFFICE ACTION OF AUGUST 19, 2002**

Please enter the following in response to the Examiner's final office action mailed August 19, 2002.

**In the Specification**

Please amend paragraph [0015] to the form indicated below.

Sub C1  
B1

-- The structure of FIG. 1 is subjected to an inventive etch as described above. An exemplary etch includes processing the wafer in a chamber of an AME5000 etch chamber. After placing the wafer substrate assembly in the etch chamber, O<sub>2</sub> and CHF<sub>3</sub> or CH<sub>2</sub>F<sub>2</sub> are introduced into the chamber at flow rates of about 60 sccm and about 20 sccm respectively. Pressure is maintained at between about 30 millitorr and about 40 millitorr, and a power of between about 300 watts and about 400 watts is utilized. At a chuck temperature of about 10°C and a sidewall temperature of about 20°C, the silicon nitride will etch at a rate of about 720Å/min in the vertical direction, and about 180Å/min in the horizontal direction. Generally, the vertical:horizontal etch rate will be about 4:1. For the 525Å thick layer of silicon nitride depicted in FIG. 1, the etch is performed in the absence of a photoresist layer for between about 35 seconds and about 60 seconds which results in the structure of FIG. 2. Spacers 32 having a width of about 300Å to about 400Å are formed. --